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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 10/669,479 | 09/24/2003 | Steven G. Goebel | GP-303584 | 3973 |
| 7590 | 01/19/2006 | | EXAMINER | |
| CARY W. BROOKS General Motors Corporation Legal Staff, Mail Code 482-C23-B21 P.O. Box 300 Detroit, MI 48265-3000 | | | HODGE, ROBERT W | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1746 | |
| | | | DATE MAILED: 01/19/2006 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

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|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/669,479 | GOEBEL ET AL. | |
| | Examiner | Art Unit | |
| | Robert Hodge | 1746 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 19 December 2005.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 13-42 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 13-42 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Response to Arguments***

1. Applicant's arguments filed 12/19/05 have been fully considered but they are not persuasive. Applicants state that the prior art does not teach that the pitch of a cathode flow field plate separated by a MEA, is less than the pitch of an anode flow field plate. And that the Carlstrom reference at paragraph [0050] teaches that all of the pitches are the same. This is not found to be persuasive since nothing in paragraph [0050] suggests anything about the pitches of the two flow field plates or what their pitch dimensions are. Furthermore it appears that applicants have merely used a scale that they have arbitrarily selected to measure the figures of the Carlstrom reference because none of the dimensions that applicants have applied to the drawings remotely match the units found in the specification of the Carlstrom reference, the dimensions that the Carlstrom reference does disclose are thicknesses of the plates. It also appears that applicants are changing their definition of the term "pitch", in applicants' arguments filed 8/16/05 page 8, Claim Language Section applicants define "pitch" as "the sum of the land and channel widths" and direct the examiner to paragraph [0029] on page 9 of applicants' specification, now applicants state that "pitch" "is defined in the specification as "the cross sectional width of the channel plus the cross sectional width of an adjacent land" and direct the examiner to paragraph [0005] of applicants' specification. Applicants cannot change the definition that is applied to the above term during midstream of prosecution. The examiner acknowledged that "pitch" would be defined as stated in applicants' arguments filed 8/16/05 and applicants are held to that, and the

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examiner does not acknowledge the new definition. And for reasons already presented in the previous prior art rejections of the claims all prior art rejections will be maintained.

2. The examiner acknowledges that claims 13 and 42 have been amended to overcome the rejection made under 35 U.S.C. 112, second paragraph and therefore the rejection is withdrawn.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 13-22, 24, 28, 31, 33-42 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Pre-Grant Publication No. 2003/0224239 hereinafter Carlstrom.

5. Carlstrom teaches a proton exchange membrane fuel cell comprising membrane electrode assemblies which have two field flow plates having a plurality of channels wherein the channels are designed to be varied in shape and pattern, where the channels can be different sizes, and cross sectional areas and would therefore have varying land-to-land contact across the membrane with a pitch of one flow field plate being less than a pitch of another flow field plate in varying degrees and a thickness of the plate is less than 1mm. It is therefore the examiners position that because of the

similar structure disclosed in the Carlstrom reference that said contact across the membrane would be about 30% as well as a land-to-land contact of about 30% (figures 5-7, paragraphs [0001]-[0004], [0012]-[0050] and claims 6, 7, 9 and 10).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 23, 25-27, 29, 30 and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Carlstrom in view of U.S. Pre-Grant Publication No. 2002/0004158 hereinafter Suzuki.

8. Carlstrom teaches everything in the above 102 rejection.

9. Carlstrom does not teach the specific dimensions found in the above listed claims or that further structure comprises structure defining a vehicle powered by the fuel cell.

10. Suzuki teaches a proton exchange membrane fuel cell for an automobile comprising membrane electrode assemblies which have two field flow plates having a plurality of channels wherein the channels are designed to be varied in shape and pattern, where the channels can be different sizes, and cross sectional areas that have the same specific dimensions as those claimed in the present application, as well the

same angles of the pitch (paragraphs [0002], [0023]-[0026], [0056]-[0059], [0063], [0066]-[0070], [0078]-[0079] and [0084]).

11. At the time of the invention it would have been obvious to a person of ordinary skill in the art to include the features of the Suzuki reference in the Carlstrom reference in order to provide a fuel cell that would be further optimized by reducing the size of the flow field plate and reduce the amount of material required to manufacture the plate, thereby allowing for a more compact design. As well as providing a fuel cell in a vehicle in order to replace the internal combustion engine that would in turn provide a vehicle that operates using clean energy and reducing pollutants released to the atmosphere.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert Hodge whose telephone number is (571) 272-2097. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RWH 1-11-06



MICHAEL BARR
SUPERVISORY PATENT EXAMINER